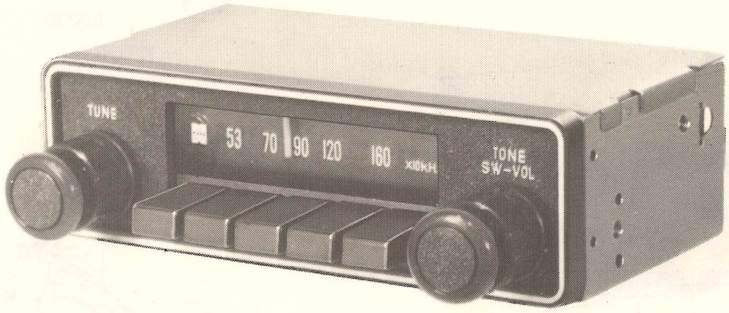
NO. 80076

CAR RADIO SERVICE MANUAL

CUSTOM-MADE FOR
TOYOTA HILUX, TOYOACE AND LAND CRUISER

TOYOTA PART NO. 86120-35025 (TUNER ASS'Y, RADIO MODEL CR-5461.T)



MODEL
CR-5461.T

AM 5-PUSHBUTTON SOLID STATE CAR RADIO

SPECIFICATIONS*

Frequency Range:	530 ~ 1605 kHz
Intermediate Frequency:	450 kHz
Sensitivity:	20 dB/μV
Power Output:	Continuous; 3.2 W (at 10% THD) Maximum; 4.0 W (Volume at max. & Tone in the treble) (Conditions; at 400 Hz 4 Ω load, DC 13.2 V)
Power Supply Voltage:	DC 12 V (11 ~ 16 V), Negative Ground
Power Consumption:	Approx. 5.3 W (0.4 A at 0.5 W ouput, DC 13.2 V)
Speaker Impedance:	4 Ω
ICs:	2
Diodes:	3
Dimensions**:	Width; 6-5/16'' (160 mm) Height; 1-7/8'' (48 mm) Depth; 3-5/32'' (80 mm)
Weight**:	1.8 lbs (0.8 kg)

FEATURES

- AM 5-pushbutton and manual tuning car radio with 4-7/8'' (124 mm) pitched shafts.
- Custom-made for TOYOTA HILUX, TOYOACE and LAND CRUISER.
- DC 12 V, Negative ground.
- Sensitive superheterodyne system using One-chipped IC on AM circuit.
- A. G. C. (Automatic Gain Control).
- Easy-to-adjust antenna trimmer.

*Specifications subject to change without notice.
**Weight and Dimensions shown are approximate.

TOYOTA MOTOR SALES CO., LTD.

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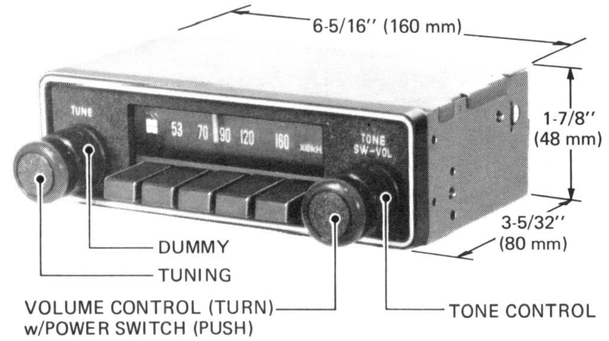
DIMENSIONS AND LOCATION OF CONTROLS



6-5/16" (160 mm)
1-7/8" (48 mm)
3-5/32" (80 mm)
TUNE
53 70 90 120 160 x10kHz
TONE SW-VOL
DUMMY
TUNING
VOLUME CONTROL (TURN) w/POWER SWITCH (PUSH)
TONE CONTROL

- Shaft Spacing: 4-7/8" (124 mm)

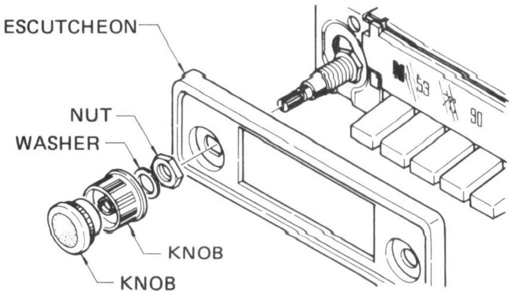
ANTENNA TRIMMER ALIGNMENT

The antenna trimmer alignment can be made, after only removing the escutcheon and knobs as below.

To adjust the antenna trimmer C102, tune in a weak station near 1400 kHz.

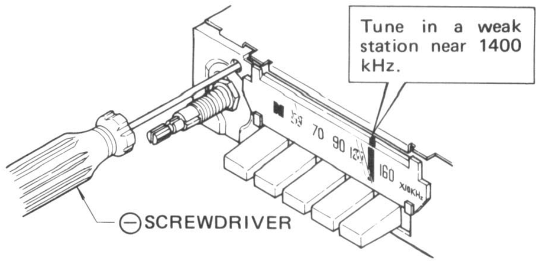
Insert a small screwdriver through the hole as shown below, and turn clockwise or counterclockwise.

Removing Escutcheon



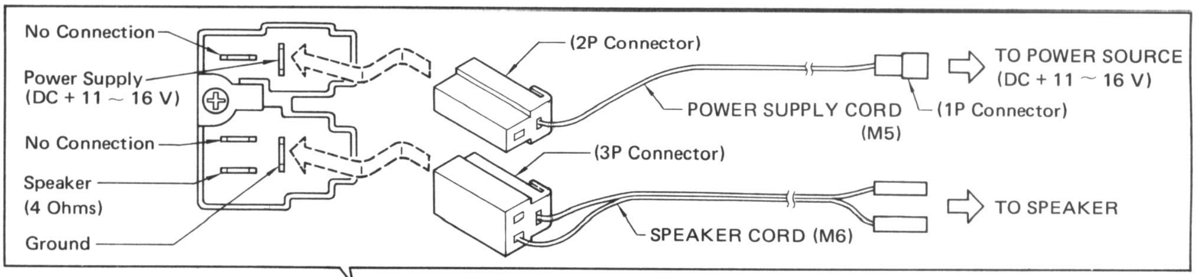
ESCUTCHEON
NUT
WASHER
KNOB
KNOB
53 90

Adjusting Antenna Trimmer

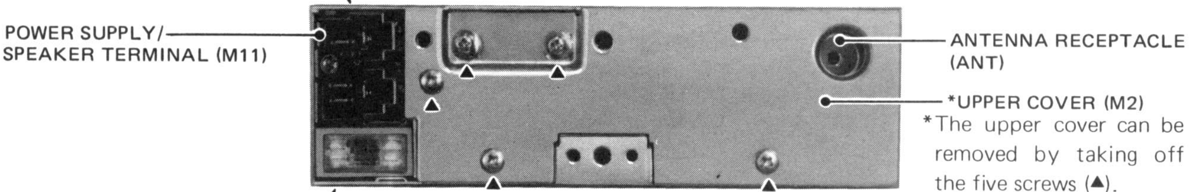


Tune in a weak station near 1400 kHz.
53 70 90 120 160 x10kHz
⊖SCREWDRIVER

REAR TERMINAL CONNECTIONS AND SERVICING NOTICE



No Connection
Power Supply (DC + 11 ~ 16 V)
No Connection
Speaker (4 Ohms)
Ground
(2P Connector)
POWER SUPPLY CORD (M5)
(1P Connector)
TO POWER SOURCE (DC + 11 ~ 16 V)
(3P Connector)
SPEAKER CORD (M6)
TO SPEAKER

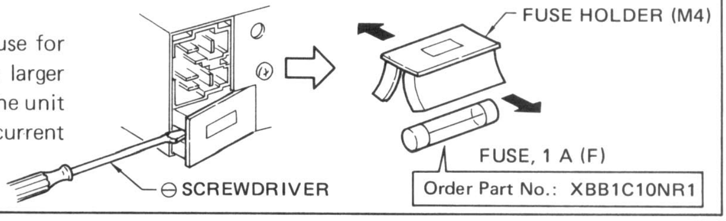


POWER SUPPLY/SPEAKER TERMINAL (M11)
ANTENNA RECEPTACLE (ANT)
*UPPER COVER (M2)

*The upper cover can be removed by taking off the five screws (▲).

FUSE REPLACEMENT

- Be sure to use a 1 A fuse for replacement. Use of a larger fuse may not protect the unit from the excessive current drain.



FUSE HOLDER (M4)
FUSE, 1 A (F)
⊖SCREWDRIVER

Order Part No.: XBB1C10NR1

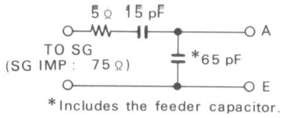
ALIGNMENT INSTRUCTIONS

■ EQUIPMENT REQUIRED

- Signal Generator: AM 450 ~ 1700 kHz, 400 Hz Mod. @ 30%
- Sweep Generator: 450 kHz
- Antenna Pad: Refer to Fig. 1.
- Indicator: Output Meter (AC voltmeter or VTVM)
- Power Supply Voltage: DC 13.2 V (standard voltage for measurement)

AM (I-F & RF) ALIGNMENT

- Set Volume Control at maximum, and Tone Control in the treble position.
- Connect the signal generator to the antenna receptacle through the antenna pad (Fig. 1).
- Keep the signal generator output low enough to prevent overloading the circuits.


5Ω 15 pF
A
TO SG
(SG IMP: 75Ω)
*65 pF
E

*Includes the feeder capacitor.

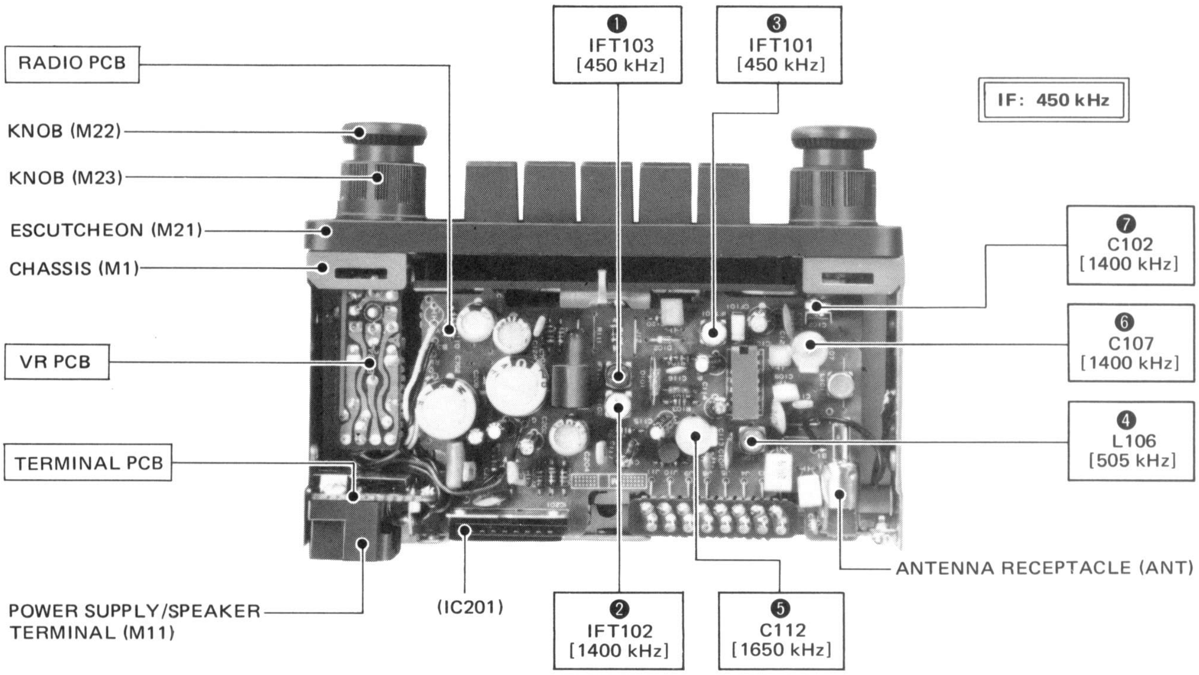
Fig. 1 Antenna Pad

		STEP	GENERATOR FREQUENCY	RADIO-DIAL SETTING	SIGNAL FEED POINT	INDICATOR CONNECTION	ADJUST	REMARKS
AM	IF	❶~❸	450 kHz [Un-modulated or 400 Hz Mod.]	Point of non-interference. (on/about 600 kHz)	Through the pad (Fig. 1) to antenna receptacle.	Output meter across speaker terminals.	IFT103 ~ IFT101	Adjust for maximum.
	RF	❹	505 kHz [400 Hz Mod.]	Low frq. end stop.	"	"	L106 (OSC)	"
		❺	1650 kHz [400 Hz Mod.]	High frq. end stop.	"	"	C112 (OSC)	"
		❻, ❼	1400 kHz [400 Hz Mod.]	Tune to signal.	"	"	C107 (RF) C102 (ANT)	"

- When radio installed in car, antenna fully extended, tune in a weak station near 1400 kHz and adjust C102 for maximum output.
- Refer to the ANTENNA TRIMMER ALIGNMENT, page 1.
- Repeat steps, two or three times.

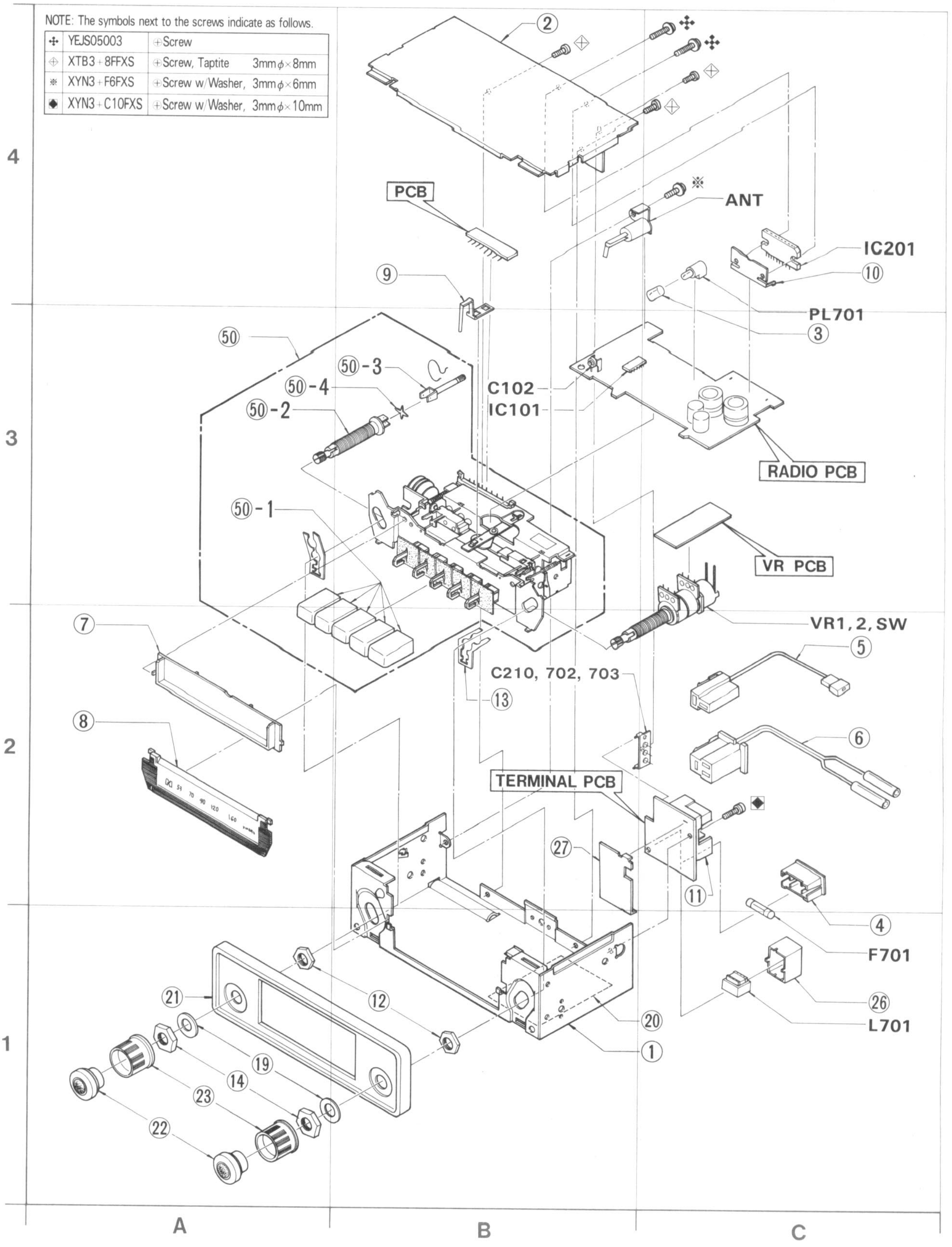
PARTS LOCATION

- ■ Numbers in ● are indicated ALIGNMENT STEPS on the ALIGNMENT INSTRUCTIONS.
- ■ Reference Numbers in ( ) are listed in the Replacement Parts List, starting on page 6.
- ■ For other parts location, see the EXPLODED VIEW on page 3.


❶ IFT103 [450 kHz]
❸ IFT101 [450 kHz]
IF: 450 kHz
RADIO PCB
KNOB (M22)
KNOB (M23)
ESCUTCHEON (M21)
CHASSIS (M1)
VR PCB
TERMINAL PCB
❼ C102 [1400 kHz]
❻ C107 [1400 kHz]
❹ L106 [505 kHz]
ANTENNA RECEPTACLE (ANT)
POWER SUPPLY/SPEAKER TERMINAL (M11)
(IC201)
❷ IFT102 [1400 kHz]
❺ C112 [1650 kHz]

EXPLODED VIEW

- Numbers in ○ are indicated REF. NO. in the REPLACEMENT PARTS LIST.



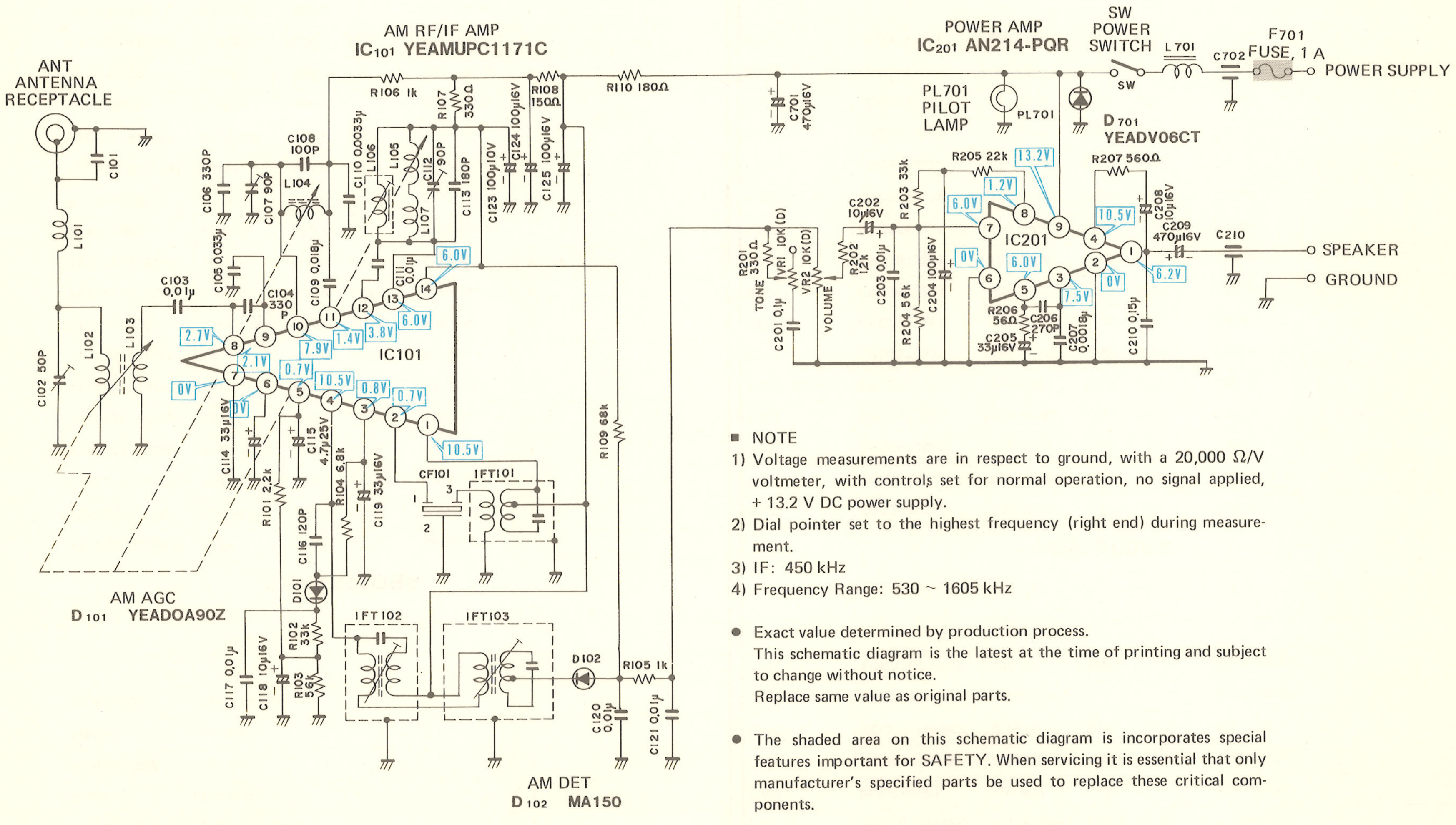
NOTE: The symbols next to the screws indicate as follows.

✣	YEJS05003	⊕Screw
⊕	XTB3+8FFXS	⊕Screw, Taptite 3mmϕ×8mm
※	XYN3+F6FXS	⊕Screw w/Washer, 3mmϕ×6mm
◆	XYN3+C10FXS	⊕Screw w/Washer, 3mmϕ×10mm

4
3
2
1
A
B
C
②
PCB
ANT
IC201
⑩
⑨
PL701
③
㊿
㊿-3
㊿-4
㊿-2
C102
IC101
RADIO PCB
㊿-1
VR PCB
VR1, 2, SW
⑦
⑤
C210, 702, 703
⑬
⑧
⑥
TERMINAL PCB
㉗
⑪
④
F701
⑫
㉑
⑳
㉖
①
L701
⑲
⑭
㉓
㉒

SCHEMATIC DIAGRAM

TOYOTA PART NO. 86120-35025
MODEL CR-5461.T


ANT ANTENNA RECEPTACLE
AM RF/IF AMP
IC101 YEAMUPC1171C
AM AGC
D101 YEADOA90Z
AM DET
D102 MA150
IC101
C101
L101
C102 50P
L102
L103
C103 0.01μ
C104 330P
C105 0.033μ
C106 330P
C107 90P
C108 100P
C109 0.018μ
C110 0.0033μ
C111 0.01μ
C112 90P
C113 180P
C114 33μ16V
C115 4.7μ25V
C116 120P
C117 0.01μ
C118 10μ16V
C119 33μ16V
C120 0.01μ
C121 0.01μ
C123 100μ10V
C124 100μ16V
C125 100μ16V
L104
L105
L106
L107
R101 2.2k
R102 33k
R103 56k
R104 6.8k
R105 1k
R106 1k
R107 330Ω
R108 150Ω
R109 68k
R110 180Ω
CF101
IFT101
IFT102
IFT103
D101
D102
2.7V
2.1V
0V
0V
0.7V
7.9V
10.5V
1.4V
3.8V
0.8V
0.7V
6.0V
6.0V
10.5V
POWER AMP
IC201 AN214-PQR
SW POWER SWITCH
SW
L701
C702
F701 FUSE, 1 A
POWER SUPPLY
C701 470μ16V
PL701 PILOT LAMP
PL701
D701 YEADV06CT
R205 22k
R207 560Ω
13.2V
1.2V
6.0V
10.5V
0V
6.0V
7.5V
0V
6.2V
IC201
C202 10μ16V
R203 33k
R201 330Ω
VR1 10K(D)
TONE
VR2 10K(D)
VOLUME
R202 1.2k
C201 0.1μ
C203 0.01μ
R204 56k
C204 100μ16V
R206 56Ω
C205 33μ16V
C206 270P
C207 0.0018μ
C208 10μ16V
C209 470μ16V
C210
C210 0.15μ
SPEAKER
GROUND

■ NOTE

1) Voltage measurements are in respect to ground, with a 20,000 Ω/V voltmeter, with controls set for normal operation, no signal applied, + 13.2 V DC power supply.
2) Dial pointer set to the highest frequency (right end) during measurement.
3) IF: 450 kHz
4) Frequency Range: 530 ~ 1605 kHz

- Exact value determined by production process.
  This schematic diagram is the latest at the time of printing and subject to change without notice.
  Replace same value as original parts.

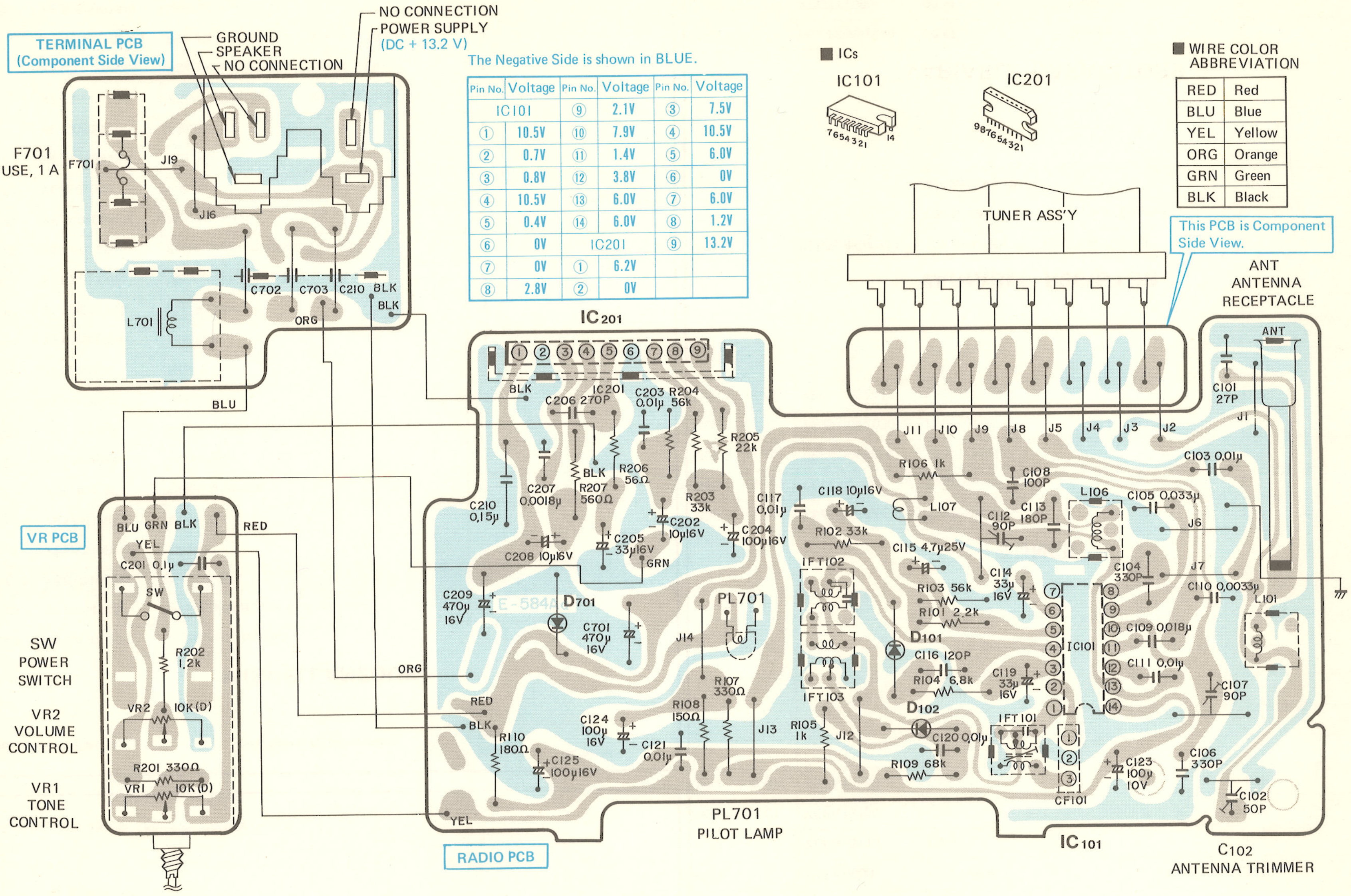
- The shaded area on this schematic diagram is incorporates special features important for SAFETY. When servicing it is essential that only manufacturer's specified parts be used to replace these critical components.

AM CAR RADIO

Apr., 1978

WIRING DIAGRAM

TOYOTA PART NO. 86120-35025
MODEL CR-5461.T


TERMINAL PCB (Component Side View)
GROUND
SPEAKER
NO CONNECTION
NO CONNECTION
POWER SUPPLY (DC + 13.2 V)
F701 FUSE, 1 A
F701
J19
J16
L701
C702
C703
C210
BLK
BLK
ORG
BLU
VR PCB
BLU GRN BLK
YEL
RED
C201 0.1μ
SW
R202 1.2k
VR2 10K(D)
R201 330Ω
VR1 10K(D)
SW POWER SWITCH
VR2 VOLUME CONTROL
VR1 TONE CONTROL
ICs
IC101
IC201
IC201
TUNER ASS'Y
This PCB is Component Side View.
ANT ANTENNA RECEPTACLE
ANT
C101 27P
J1
J2 J3 J4 J5 J8 J9 J10 J11
C103 0.01μ
C105 0.033μ
J6
J7
C104 330P
C110 0.0033μ
L101
C109 0.018μ
C111 0.01μ
C107 90P
C106 330P
C102 50P
C102 ANTENNA TRIMMER
IC101
R106 1k
C108 100P
L106
L107
C112 90P
C113 180P
C118 10μ16V
C117 0.01μ
R102 33k
C115 4.7μ25V
IFT102
R103 56k
R101 2.2k
C114 33μ 16V
D101
C116 120P
R104 6.8k
C119 33μ 16V
IFT103
D102
C120 0.01μ
IFT101
CF101
R109 68k
R105 1k
J12
J13
J14
R107 330Ω
R108 150Ω
C123 100μ 10V
C124 100μ 16V
C121 0.01μ
C125 100μ16V
R110 180Ω
PL701
PL701 PILOT LAMP
D701
C701 470μ 16V
C209 470μ 16V
C208 10μ16V
C210 0.15μ
C207 0.0018μ
R207 560Ω
R206 56Ω
C206 270P
IC201
C203 0.01μ
R204 56k
R205 22k
R203 33k
C202 10μ16V
C205 33μ16V
C204 100μ16V
GRN
BLK
ORG
RED
BLK
YEL
RADIO PCB

The Negative Side is shown in BLUE.

Pin No.	Voltage	Pin No.	Voltage	Pin No.	Voltage
IC101		⑨	2.1V	③	7.5V
①	10.5V	⑩	7.9V	④	10.5V
②	0.7V	⑪	1.4V	⑤	6.0V
③	0.8V	⑫	3.8V	⑥	0V
④	10.5V	⑬	6.0V	⑦	6.0V
⑤	0.4V	⑭	6.0V	⑧	1.2V
⑥	0V	IC201		⑨	13.2V
⑦	0V	①	6.2V		
⑧	2.8V	②	0V		

■ WIRE COLOR ABBREVIATION

RED	Red
BLU	Blue
YEL	Yellow
ORG	Orange
GRN	Green
BLK	Black

AM CAR RADIO

Apr., 1978

Replacement Parts List
Model NO. CR-5461.T (TOYOTA PART NO.86120-35025)

NOTES:

1. Be sure to make your orders of replacement parts according to this list.
2. Components identified by shaded area have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The column of Ref. No. indicates the located position of the parts on the EXPLODED VIEW, and see the cross section of the horizontal column (1 → up) and the vertical column (A → up).

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
ANT (4-C)	YEAA10025	Antenna Receptacle	1	
PL701 (3-C)	YEFK04165	Pilot Lamp Holder (w/Pilot Lamp)	1	
F701 (1-C)	XBB1C10NR1	Fuse, 1 A	1	
M1 (1-C)	YEFA01207D	Chassis	1	
M2 (4-B)	YEFA03284	Upper Cover	1	
M3 (3-C)	YEFR04085	Illumination Cap	1	
M4 (1-C)	YEFK02017	Fuse Holder	1	
M5 (2-C)	YEAJ01258	Power Supply Cord	1	
M6 (2-C)	YEAJ03287	Speaker Cord	1	
M7 (2-A)	YEFJ10197	Back Plate	1	
M8 (2-A)	YEFJ08370A	Dial Plate	1	
M9 (4-B)	YEFH01176A	Dial Pointer	1	
M10 (4-C)	YEFX021350	Mounting Bracket, IC	1	
M11 (2-C)	YEAT03150	Power Supply/Speaker Terminal	1	
M12 (1-B)	YEJN01028FX	Nut, Hexagon	2	
M13 (2-B)	YEJE01008	E-Ring	1	
M14 (1-A)	YEJN01037FX	Nut, Hexagon	2	
M15	YEJS05003	⊕Screw	2	
M16	XTB3 + 8FFXS	⊕Screw, Taptite 3mmø x 8mm	3	
M17	XYN3 + F6FXS	⊕Screw w/Washer, 3mmø x 6mm	1	
M18	XYN3 + C10FXS	⊕Screw w/Washer, 3mmø x 10mm	1	
M19 (1-A)	YEJW02007AW	Washer, Flat	2	
M20 (1-C)	YEFM01335	Main Seal	1	
M21 (1-A)	YEFC02317A	Escutcheon	1	
M22 (1-A)	YEFE07081	Knob, Volume and Tuning	2	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
M23 (1-A)	YEFE08072	Knob, Tone and Dummy	2	
M24	YAFK05007	Fuse Holder	2	
M25	YEFA13113	Case	1	
M26 (1-C)	YEFA13100	Case	1	
M27 (2-B)	YEFA13150	Case	1	

TUNER

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
M50 (3-A)	YEAU05242	Tuner Ass'y	1	
M50-1 (3-A)	YEFE10192	Push Button	5	
M50-2 (3-A)	YESAU05S085	Tuning Shaft	1	
M50-3 (3-B)	YESAU02Z030	Pinion Shaft	1	
M50-4 (3-A)	YESAU02Z017	Universal Joint	1	

VARIABLE RESISTOR

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
VR1,	EWJ3LBS24D14	10k OHM (D) Tone Control	1	
2		10k OHM (D) Volume Control		
w/SW		w/Power Switch		

VARIABLE CAPACITORS

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
C102	ECV1ZW50X40	50 PF Trimmer	1	
C107, 112	YECTT1090	90 PF Trimmer	2	

ICs AND DIODES

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
IC101	YEAMUPC1171C	AM RF/IF Amp	1	
IC201	AN214	Power Amp	1	
D101	YEADOA90Z	AM AGC	1	
D102	MA150	AM DET	1	
D701	YEAD030	Spark Suppression	1	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
C101	YECCD1H270KM	27 PF 50WV ±10% Ceramic	1	
C103	YECQX1H103M	0.01 MFD 50WV ±20% Polyester	1	
C104	YECCD1H331KM	330 PF 50WV ±10% Ceramic	1	
C105	YECQX1H333M	0.033 MFD 50WV ±20% Polyester	1	
C106	YECCD1H331KM	330 PF 50WV ±10% Ceramic	1	
C108	YECCD1H101KM	100 PF 50WV ±10% Ceramic	1	
C109	YECQX1H183M	0.018 MFD 50WV ±20% Polyester	1	
C110	YECQX1H332K	0.0033 MFD 50WV ±10% Polyester	1	
C111	YECQX1H103M	0.01 MD 50WV ±20% Polyester	1	
C113	YECCD1H181JR	180 PF 50WV ±5% Ceramic	1	
C114	ECEA16S33	33 MFD 16WV Electrolytic	1	
C115	ECEA25S4R7	4.7 MFD 25WV Electrolytic	1	
C116	YECCD1H121KM	120 PF 50WV ±10% Ceramic	1	
C117	YECQX1H103M	0.01 MFD 50WV ±20% Polyester	1	
C118	ECEA16S10	10 MFD 16WV Electrolytic	1	
C119	ECEA16S33	33 MFD 16WV Electrolytic	1	
C120, 121	YECQX1H103M	0.01 MFD 50WV ±20% Polyester	2	
C123	ECEA10S100	100 MFD 10WV Electrolytic	1	
C124, 125	ECEA16S100	100 MFD 16WV Electrolytic	2	
C201	YECCD12104M	0.1 MFD 50WV ±20% Ceramic	1	
C202	ECEA16S10	10 MFD 16WV Electrolytic	1	
C203	YECQX1H103M	0.01 MFD 50WV ±20% Polyester	1	
C204	ECEA16S100	100 MFD 16WV Electrolytic	1	
C205	ECEA16S33	33 MFD 16WV Electrolytic	1	
C206	YECCD1H271KM	270 PF 50WV ±10% Ceramic	1	
C207	YECQX1H182K	0.0018 MFD 50WV ±10% Polyester	1	
C208	ECEA16S10	10 MFD 16WV Electrolytic	1	
C209	ECEA16V470W	470 MFD 16WV Electrolytic	1	
C210	ECQM1H154MZ	0.15 MFD 50WV ±20% Polyester	1	
C211, 702, 703	YECCL510353	1000 PF x 3 Feedthrough	1	
C701	ECEA16V470W	470 MFD 16WV Electrolytic	1	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
R101	ERD25TJ222	2.2k OHM 1/8W ±5% Carbon	1	
R102	ERD25TJ333	33k OHM 1/8W ±5% Carbon	1	
R103	ERD25TJ563	56k OHM 1/8W ±5% Carbon	1	
R104	ERD25TJ682	6.8k OHM 1/8W ±5% Carbon	1	
R105, 106	ERD25TJ102	1k OHM 1/8W ±5% Carbon	2	
R107	ERD25TJ331	330 OHM 1/8W ±5% Carbon	1	
R108	ERD25TJ151	150 OHM 1/8W ±5% Carbon	1	
R109	ERD25TJ683	68k OHM 1/8W ±5% Carbon	1	
R110	ERD25TJ181	180 OHM 1/8W ±5% Carbon	1	
R201	ERD25TJ331	330 OHM 1/8W ±5% Carbon	1	
R202	ERD25TJ122	1.2k OHM 1/8W ±5% Carbon	1	
R203	ERD25TJ333	33k OHM 1/8W ±5% Carbon	1	
R204	ERD25TJ563	56k OHM 1/8W ±5% Carbon	1	
R205	ERD25TJ223	22k OHM 1/8W ±5% Carbon	1	
R206	ERD25TJ560	56 OHM 1/8W ±5% Carbon	1	
R207	ERD25TJ561	560 OHM 1/8W ±5% Carbon	1	

COILS, TRANSFORMERS AND CERAMIC FILTER

Ref. No.	Part No.	Part Name & Description Toyota Part No.		Pcs Set	Remarks
L101	YELQ07S046	RF Choke Coil		1	
L106	YELL07S070	OSC Coil		1	
L107	YELT06N5R6	RF Coil		1	
L701	YETQ021F037	Choke Coil		1	
IFT101	YEIA07S7099	AM IFT		1	
IFT102	YEIA07S0100	AM IFT		1	
IFT103	YEIA07S7101	AM IFT		1	
CF101	YEIN08N5008	AM Ceramic Filter		1	

ACCESSORIES

Ref. No.	Part No.	Toyota Part No.	Part Name & Description	Pcs Set	Remarks
SP	EAS18D20SD	86160-35011	Speaker	1	
A1	YEFG05292	86215-89107	Rear Bracket	1	